

# Department of Land and Natural Resources

## Sustainability Hotspot

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### ONOMEA

~Big Island of Hawaii~



Top: *Miconia calvenscens*, the green cancer, growing in an anthurium patch. Bottom: Seeds from a mature *Miconia* plant set against the plant's deeply colored leaves.

Once a thriving sugarcane plantation camp, Onomea is now perhaps best known as the site where *Miconia calvenscens*, the “green cancer,” is at its greatest densities on the Big Island of Hawaii. Onomea is also known as a popular tourist destination and the site of the Hawaii Botanical Garden. *Miconia* was introduced to the Hawaiian islands in 1959. This colorful ornamental probably reached Onomea by the 1970s where it found climatic conditions similar to its natural range in tropical Central America.

*Miconia* is considered Hawaii’s most menacing weed. This aggressive, invasive threat is now found on four of the five main Hawaiian islands: Hawaii, Maui, Oahu, and Kauai. A mature *Miconia* tree fruits three to four times per year, producing millions of tiny seeds annually. Seeds are readily spread by birds after they eat the small purple berries. People also spread seeds with contaminated clothing, shoes, vehicles, equipment and heavy machinery. A single cup of contaminated soil may contain thousands of viable seeds. *Miconia* has also invaded other pacific islands, including Tahiti where it is presently established on over 65% of this island (ca 70,000 hectares) and about 10% of the neighboring island of Moorea (ca 1,200 hectares) (Meyer and Malet, 1997).

Scientists are concerned that *Miconia calvenscens* has the ability to take over our agricultural, pasture and forest lands given its broad ecological amplitude and its abilities to form dense, shallow-rooted stands that shade out and prevent regeneration of most other plant species.

Operation Miconia, organized in 1996, is a coordinated, Statewide response to the invasion of Hawaii by *Miconia calvenscens*. On the Big Island, Operation Miconia is directed by the Big Island Melastome Action Committee (BIMAC) comprised of multi-agency professionals and volunteers. Membership in BIMAC includes:

- DLNR’s Division of Forestry and Wildlife (DOFAW): (\$30,000 in-kind services in 1997-98);
- the County of Hawaii: (\$100,000 cash for 1997-99);
- the State Dept. of Agriculture: (\$4,000 per year in-kind for 1997-98);
- the National Park Service;
- USDA Forest Service: (\$50,000 cash plus in-kind services for project management);

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Top: Miconia seedlings start off small but grow rapidly to shade out neighboring plants. Bottom: A thick stand of Miconia just 11 years old.

■ Leilani, Ainaloa, Naniloa, Fern Acres, and Hawaiian Acres Community Associations;

■ National Fish and Wildlife Foundation (Pulling Together Initiative, \$25,000 cash for 1997-98);

■ U.S. Geological Survey, Biological Resources Division;

■ Research Corporation of the University of Hawaii at Manoa;

■ The Nature Conservancy;

■ The Estate of James Campbell: (\$10,000 cash for 1997-98).

The goal of Operation Miconia is to eradicate Miconia from as many Hawaii sites as possible and prevent its spread in the future.

#### **DLNR's Sustainability Hotspot Team for Onomea:**

**Lyman Perry - Forestry and Wildlife/BIMAC, Big Island, 974-4381;**  
**Betsy Gagne - Forestry and Wildlife/Natural Area Reserve Prog.;**  
**Julie Leialoha - Forestry and Wildlife/Natural Area Reserve Prog./BIMAC;**  
**Bob Nishimoto - Aquatic Resources;**  
**Brian Sugiyama - Conservation and Resources Enforcement;**  
**Victor Tanimoto - Forestry and Wildlife;**  
**Charlene Unoki - Land Division;**

is DLNR's representative in the eradication and control effort.

#### **DLNR's Vision for the Future and How to Attain It**

DLNR's future vision for Onomea, and the State for that matter, is one without the threat of this invasive weed. Operation Miconia has three main facets:

■ field control using a combination of mechanical removal, herbicide treatment and biological control;

■ community education, awareness and interaction; and

■ reconnaissance, mapping and rapid response. Dedicated funding is needed every year for the next 10-15 years to support field personnel.



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Top to bottom: Demonstrating the leaf size of a mature Miconia plant, Miconia has established itself in Tahiti where it thrives in the warm climate, new growth on a severed Miconia stump.

A crew of about six people is needed on a regular basis. Volunteers, civic groups, Alu Like and others provide much-needed support.

An effective plan to control and monitor any alien invasion is founded on detailed knowledge of its distribution and patterns of occurrence. A computerized database gathered using ground and helicopter surveys, the Global Positioning System (GPS), and community outreach provide insights into the patterns and time scale of Miconia spread. This information helps BIMAC, DLNR and participating agencies establish the scale of invasion and can be used to set priorities for rapid response by field control teams and provide accurate maps of locations essential for follow-up monitoring.

It is important to note that the BIMAC strategy is to treat the outside edges of the infestation first, areas such as the Puna Forest Reserve, Ainaloa, and areas in Puna, as well as areas *mauka* (inland) of Onomea. The long-term goal is to work back from the outside edges toward Onomea.

Citizens perform a valuable service to the native flora and fauna in the Hawaii landscape by being aware of the threat of non-native plants and animals. By reporting infestations to the State's Miconia Hotline, the public helps officials map all sites and develop effective, well-coordinated control efforts. Such public participation and input into Operation Miconia is facilitated through information sessions for community associations, clubs and civic groups, production of educational materials for schools, productions on community access television, and volunteer activities.

A host-specific fungus has also been released at several sites (including Onomea) on the Big Island to control the spread of this weed. The fungus' effectiveness in attacking and killing Miconia is currently being monitored.

BIMAC and DLNR encourage land owners to cooperate by pulling up or cutting down and killing Miconia on their properties. Contact the Hawaii Department of Agriculture's Miconia Hotline on the **Big Island (961-3299)** to report sightings. Other Miconia hotlines in place include:

**Kauai - 274-3069**

**Lanai - 565-7430**

**Maui - 984-8100**

**Oahu - 973-9541**

**984-8107 (after hours)**

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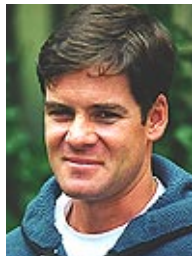
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The seeds of destruction, a new generation of Miconia plants is easily spread by birds, streams, and by man.

Over the next 10 years, working in conjunction with its Big Island partners, DLNR will require a budget of \$3 million in the effort to eradicate Miconia. These funds would be expended for integrated field control and monitoring; reconnaissance, mapping and rapid response; and to promote community education, awareness and interaction. A portion of this funding would be derived from grants from the USDA Forest Service and the National Fish and Wildlife Foundation.



DLNR's Hotspot Team for Onomea: (top row) Perry, Leialoha, Nishimoto, Tanimoto, (bottom row) Sugiyama, Unoki.